

CONTAGION EFFECT AND ORGANIZATION

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Abstract

The idea behind the article is to explain the mechanism behind the contagion and characterize the response models of organization. Initially, the term contagion was used within immunology, and has attracted considerable interest in psychology, sociology and research into financial crises as well as into the way various effects spread throughout networks of companies. However, models of response of organization towards contagion are rarely analyzed.

The article identifies attributes of contagion as well as definition and types of contagion. What is more, the paper shows the methodology for the diagnosis of contagion within the organization activities. In the final part of the article two models of organization's response to contagion are discussed. One of them is based on the metaphor to the response of the immune system to the disturbance factor.

Keywords: Contagion, contagion effect, complexity, organization

Introduction

A number of terms admittedly have ambiguous interpretations within various research fields. These notions include the *contagion effect*, which has attracted considerable interest in psychology, sociology and research into financial crises as well as into the way various effects spread throughout networks of companies. For that reason, it makes sense to attempt to make the above-mentioned concept more specific and thereby indicate the possibilities of its practical application within the area of organization.

Main Text

When discussing the concept of contagion, we are dealing with the classical problem related to epistemological complexity of social systems. In particular, their semiotic complexity results in our capacity to imbue every piece of information with a theoretically infinite array of meanings, whereas semantic complexity stems from the fact that interpersonal communication depends on language and culture, which are inherently ambiguous and

subjective. This is reflected in the notion of linguistic uncertainty where linguistic entities do not adopt numerical values, but are composed of words, sentences and expressions. For this reason, the scope of semantic fields of information is variable.

The concept of contagion was most likely used for the first time to describe the mechanism of a spreading epidemic, however, subsequently it came to be applied in what would seem to be quite remote domains of research. It was mostly due to the emergence of new social phenomena related to the accelerated pace of information flow and the appearance of new opportunities for communication. These factors have resulted in increasing numbers, intensities, variabilities and dynamics of interrelationships within social systems, which, in turn, has led to increased degrees of complexity. This observation applies especially to dynamic complexity, i.e. the emergence of problem areas within which cause-effect relationships are subtle, and where the consequences of actions are not obvious within various timeframes. These include, for example, situations where the same action causes quite distinct short-term and long-term effects as well as different local and global impacts (Senge, 2000).

Such complex phenomena are difficult to describe using our current conceptual apparatus, hence the occasional intuitive inclination to borrow terms from other research domains with a longer tradition.

The concept of contagion was used by David Ricardo who witnessed a panic leading to the suspension of deposit withdrawals by the Bank of England in 1797 as a result of “the contagion of the unfounded fears of the timid part of the community.” (Kelly & Grada, 2000) However, a massive increase in the use of the term did not occur until the end of the 20th century.

Attributes of contagion

The review of literature allows us to distinguish two basic approaches to the understanding of the term *contagion*. They involve the spread of financial crises and an imitation of behaviour. As part of the interpretative framework of such phenomena as viral marketing (Stewart, Ewing & Mather, 2009). (Trusov, Bucklin & Pauwels, 2009), purchasing decisions (Argo & Dahl, 2008) or behaviour within the supply chain (McFarland., Bloodgood & Payan, 2008), the concept of contagion is used in the context of imitating behaviour. The approach to financial markets focuses on the spreading of crises (disturbances) (Edwards, 2000). However, both cognitive perspectives are sometimes complementary, and e.g. the analyses describing the spread of financial crises take into consideration the imitation of behaviour typical of the ‘herd behaviour.’ An essential strand of analyses undertaken within the framework of contagion is that it intensifies the existing interdependence (Kaminsky, Reinhart & Végh, 2007), (Markwat,

Kole & van Dijk, 2009). It is assumed that contagion is subject to escalation, which is why local disturbances may transform into regional or even global crises. (Markwat et. al., 2009).

The phenomenon of contagion is also characterised by the fact that the classical mechanism of spreading crises involves investors in a number of countries owning the same assets (Roubini & Mihm, 2011) or applying the same cognitive mechanisms. The latter result for example the panic effect and herd behaviour, which, in turn, facilitate the spread of contagion.

The essence of contagion comes down to its capacity to impose its influence mechanism on the affected entities. Within the temporal frame, contagion can be attributed two properties, namely immediacy and violence. Immediacy means that as soon as the mechanism of influence starts to operate, contagion occurs. Rapidity is tantamount to the intensity of the phenomenon. Its scope may include such attributes of contagion as its high frequency, which refers to the escalation of connections as a result of contagion, as well as its capacity to multiply by replication in numerous situations. In terms of contents, contagion is said to be characterised by the surprise effect.

Definition and types of contagion

In the light of the above considerations, **contagion can be defined as the process of an accelerated spread of repeatedly replicating information**, which is possible owing to its capacity to impose the mechanism of action on the affected entity (e.g. a company) (Wycislak, 2013).

It is hard to find a definition of the term *contagion effect* in the literature. Usually, it is understood intuitively as the result of contagion that may lead to increased interdependence amongst the affected entities.

With respect to the way contagion occurs, two kinds of the process can be isolated:

- direct exposure contagion– occurs when one entity influences another, e.g. liquidity problems affecting a company may cause similar problems in other companies;
- emerging contagion – when entities affected by contagion appear independently of one another owing to their exposure to the same kind of assets, e.g. bonds of Eurozone states at risk of bankruptcy (Greece, Spain, Portugal), but such assets may also include currencies and derivative instruments.

When it comes to the presence or absence of intention, contagion can be divided into:

- intentional – when it is spread purposefully; it may occur e.g. when an enterprise intentionally abuses the terms and conditions of cooperation;
- non-intentional – when contagion occurs as a result of lack of awareness, e.g. when a participant in the value chain initiates certain attitudes which are then inadvertently adopted by other participants.

As regards to the distribution of its sources, contagion can be characterised as:

- single-epicentre, e.g. the US in August 2007,
- multiple-epicentre, e.g. Greece and Italy in 2011.

With respect to its types, contagion is usually characterised as:

- financial e.g. the interbank market (Henggeler-Müller, 2006), exposure to foreign assets (Rose & Spiegel, 2009), liquidity problems, (Hernandez & Valdes, 2001) direct financial connections (Hernandez & Valdes, 2001), CDSs (Credit Default Swaps) (Rose & Spiegel);
- financial-real economy – contagion spreads in the sphere of the real economy through the actions of the financial markets, e.g. abrupt cessation of commercial bank lending due to insufficient liquidity on the interbank market;
- real – (contagion within the sphere of the real economy) – e.g. exposure of trading connections to *country zero*, that is, the one where the crisis has started, or a sudden decrease in the volume of orders.

However, there are also other kinds of contagion that, from the vantage point of a company, do not necessarily have a negative impact on its operation. Accordingly, the following types of contagion have been identified:

- virtual – those that occur in the virtual space, e.g. a film that shows poor recruitment practices or certain aspects of organizational culture, which, on the other hand, offer an opportunity for buzz marketing based on the unique contents of a film, game, virtual postcards;
- virtual-real – the transmission of phenomena that occur in virtual space into the real world, e.g. contagion in the virtual sphere drives the actual purchasing decisions made by consumers.

The contagion effect and the behaviour of companies

In the sphere of organization activity, we may identify three types of behaviours in the face of the contagion effect. They include situations where the organization is subject to contagion, itself causes contagion or when contagion occurs within it. These three situations may occur simultaneously.

It seems reasonable to present the methodology for the diagnosis of contagion within the organization activities (table 1).

Distinctive features	Description
Evaluation	<p>Aims to transform received information and to make them qualitative / quantitative. This is achieved through the following steps: selection of evaluation criteria, adjusting evaluation criteria, ranking factors, aggregation and fragmentation, synthesis, ordering etc.</p> <p>It is important to be very careful in the process of selection of evaluation criteria. For this purpose it is essential to stay objective while selecting criteria for the evaluation and to reject arbitrariness and randomness in this area. Methodically correct and practically useful solution for the selection of evaluation criteria is the procedure of successive approximations.</p>
Categorization	The procedure used to identify the qualitative class of factors causing contagion. In relation to the evaluation, the categorization is secondary and complementary assessment.
Selection	<p>The test of significance of factors causing contagion. The significance of the factors causing contagion can be determined based on the following premises:</p> <ol style="list-style-type: none"> 1. relevance (how powerful is the factor causing contagion in relation to the effective functioning of the company), 2. the resources necessary to block, compensate, minimize or eliminate contagion and its consequences, 3. correlation between factors causing contagion - whether action is a prerequisite (condition) in relation to other factors causing contagion, or it is independent. The existence of the limits of admissibility ensures that any future changes in the size of the states of the factors causing contagion factor will be recorded and re-examined.

Table 1. Analytical formula of contagion effect methodology.

Source: Own work

Naturally, an infected organization may become a source of problems for other companies. It may occur intentionally, when the enterprise in question purposefully refrains from cooperation. At this moment it makes sense to ask, under what conditions do organizations tend to share risks and when do they tend to infect others? In this respect, the level of trust appears to be the decisive factor, however, we cannot forget about the propensity to exploit a dominant position in the network as well as how easy it is to break the relationship. In the face of contagion, one should simply break the relationship. Thus, risk-sharing appears to be advantageous when the general economic situation is favourable. In the context of instability, it is better to

remain isolated (Gallegati, Greenwald, Richiardi & Stiglitz, 2008). Contagion may also occur inadvertently, when within the value chain certain disadvantageous behaviours tend to be more and more widely imitated (e.g. overstocking).

In the case of contagion within an organization, the decisive role is played by its culture and leadership. Rumours tend to spread in the context of nepotism (division of goods and services at variance with the social, legal and ethical order). However, a positive contagion effect can be achieved thanks to the existence of genuine leadership.

Response models

In the first model it is assumed that the greater the inertia and the smaller the flexibility, the greater the contagion effect.

An irregular path of flexibility and inertia changes results in a nonlinear development of the contagion effect, including self-organized criticality. Organization creates its paths, it also accumulates inertia, in both positive and negative terms. Cumulative inertia often takes latent and implicit forms, until it gets concrete and explicit in the moment of external or internal forces, which challenge the previous or past ways of acting.

Flexibility results from resource redundancy, diversification of activities and/or resources, monitoring, decision-making processes and mobility. Inertia results, among others, from limited resilience of organizational culture, organizational paralysis, excessive formalisation, monotony of work, excessive inspection and conventional thinking .

It should be noted that disparities between inertia and flexibility have to respect stability and adaptation. Viability of an organization (analyzed system) is a function of the proper balance between stability and adaptation. Inertia is a component that contributes to stability, whilst flexibility is a factor behind an organization adaptation (Wycislak, 2013).

The second model is based on the metaphor to the response of the immune system to the disturbance factor.

An organism penetrated by an antigen (disruptive factor) has the following protection barriers and possibilities of response:

- I. external barriers (biochemical and physical ones) – the non-specific immunity mechanism;
- II. phagocytosis – a mechanism deprived of specificity;
- III. the pre-formed level (cross reactions) – a mechanism of the so-called fuzzy specificity;
- IV. the adaptive level – a mechanism of specific immunity.

The response to the disruptive factor constitutes a “link” (a translator of sorts) between immunology and organization and management. Such a link is necessary and results from the differences that hold between the

disciplines under consideration. They involve both different terminology and a different manner of utilisation of accumulated information.

Systems isolated on the basis of the specificity criterion (or more precisely, the influence on obtaining specificity) are as follows: the external barriers subsystem, the non-specific defence subsystem, the fuzzy specificity subsystem, the non-specific defence subsystem.

The external barriers subsystem external barriers must inevitably be of a fluid character and change over time. A feature of external barriers is their variability, temporary formation and fuzziness. Evolving external barriers should be characterised by adaptiveness, which requires redundancy with a considerable amount of diversity.

If a disruptive factor penetrates the external barriers, it meets the next barrier – the non-specific defence subsystem. Consequently, the non-specific defence subsystem is constituted by incidental activities. They constitute the unconscious effects of conscious activities. Hence, it is random variation that decides as to the compensation of growing resistance. Thus, in the non-specific defence subsystem occurs the unconscious compensation of resistance of the disruptive factor. It is worth bearing in mind that unconscious compensation usually involves a pre-emptive impact on the disruptive factor.

The fuzzy specificity subsystem is partly created by directed activities, but they are not strictly determined and they are still characterised by a certain degree of randomness. This randomness is fuzzy. That is, one cannot create an arbitrary border, separating incidental activities from those already determined. Therefore median values are admissible.

Consequently, the adjustment to an interfering disruptive factor results partly from oriented and determined activities, and partly from accidental activities as unconscious effects of oriented and determined activities. Reasoning in this way, one can describe the category of a centre as one that generates fuzzy specificity. In other words, the impact of a centre creates foundations for the occurrence of a fuzzy specificity.

The last barrier involves activities of a strictly oriented, determined and conscious nature. They should occur within functional areas (units). In general, the most favourable conditions for compensatory activities exist within the framework of functional units. The following functional areas are dedicated to the compensation and elimination of disruptive factors: finances, R&D, production, marketing, logistics (in the sense of activities).

At the level of functional units, staff must be motivated and have an opportunity to work on their own initiative. Functional units must take compensatory actions respecting the rules established by the centre. Compensation should therefore occur on the basis of immediate feedback. It

must result in an immediate correction of deviations at the earliest possible stages of their appearance (Wycislak, 2006).

Conclusion

The paper discusses the most paramount characteristics of the concept of contagion and the reasons for increased currency of the term against the background of increasing complexity of social systems. The latter arises from the accelerated information flow and the emergence of new communication channels. The paper identifies, among other things, such features of contagion as suddenness, immediacy, capacity to multiply and surprise, which lead directly to the definition and typology of the process. The term *contagion effect* is defined. Two models of organization response to contagion are discussed.

References:

- Argo J.J., Dahl D.W., Morales A.C., Positive Consumer Contagion: Responses to Attractive Others in a Retail Context, „Journal of Marketing Research”, 2008, Vol. XLV.
- Edwards S., Contagion, University of California, Los Angeles And National Bureau of Economic Research, March 2000, http://www.anderson.ucla.edu/faculty/sebastian.edwards/world_economy5.pdf.
- Gallegati M., Greenwald B., Richiardi M.G., Stiglitz J.E., The Asymmetric Effect of Diffusion Processes: Risk Sharing and Contagion, „Global Economy Journal” 2008, Vol. 8.
- Henggeler-Müller J., Interbank Credit Lines as a Channel of Contagion, „Journal of Financial Services Research”, 2006, No. 29(1).
- Hernandez L. H., Valdes R. O., What drives contagion. Trade, neighborhood, or financial links? , International Review of Financial Analysis, 2001, No. 10.
- Kaminsky G.L., Reinhart C.M., Végh C.A., The Unholy Trinity of Financial Contagion, Journal of Economic Perspective, Volume 17, Number 4, Fall 2003.
- Kelly M., Grada O. C., Market contagion: Evidence from the Panics of 1854 and 1857, The American Economic Review, Vol. 90, No. 5, December 2000.
- Markwat T.E., Kole E., van Dijk D., Contagion as a Domino Effect in Global Stock Markets, „Journal of Banking & Finance” 2009, No. 33(11).
- McFarland R., Bloodgood J.M., Payan J.M., Supply Chain Contagion, Journal of Marketing 2008, vol. 72.
- Rose A.K., Spiegel M.M., Cross Country Causes and Consequences of the 2008 Crisis: International Linkages and American Exposure, „Centre for

Economic Policy Research Discussion Paper”, No. 15358, September 2009, <http://www.nber.org/papers/w15358.pdf>.

Roubini N., Mihm S., *Ekonomia kryzysu (The Economy of Crisis)*, Oficyna Wolters Kluwer Business, Warszawa 2011.

Senge P., *Piata dyscyplina (The Fifth Discipline)*, Dom Wydawniczy ABC, Warszawa 2000.

Stewart D.B., Ewing, M., Mather D.R., *A Conceptual Framework for Viral Marketing*, Australian and New Zealand Marketing Academy (ANZMAC MAC) 2009 Sustainable Management and Marketing Conference, 30 November 2009–2 December 2009, Australian and New Zealand Marketing Academy (ANZMAC MAC), Melbourne Vic 2009.

Trusov M., Bucklin R.E., Pauwels K., *Effects of Word-of-Mouth Versus Traditional Marketing: Findings from an Internet Social Networking Site*, „Journal of Marketing” 2009, Vol. 73.

Wycislak S., *Efekt zarazania a dzialalnosc organizacji (The contagion effect and organization)*, Wydawnictwo Naukowe UJ, Krakow 2013.

Wycislak S., *System odpornosci przedsiebiorstwa (The immune system of the company)*, Organizacja i Kierowanie, 2006.

PERCEPCIONES DE ESTUDIANTES UNIVERSITARIOS SOBRE LA PLANIFICACIÓN DE LA ESCRITURA

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Abstract

This paper includes a research whose principal objective was to know the Teaching College Students' perception about their competence to planning the writing text. This study involved to fourteen students, aged between 20.1 and 23.1 years old (mean 21.3). All of them were finishing the 2nd year of degree in Primary Education. A qualitative research (case study), with exploratory character was designed to carry out this study using the "cognitive interview" as a strategy for data collection and the "content analysis" to interpret them. For this, a category system valued by the procedure of "expert judgment" was created. The results reveal that, in general, the university students use strategies that facilitate the process of planning on writing, to a greater or lesser degree depending on the case. However, the recording and ordination of ideas in the text, as well as the textual organization were the cognitive operations in which the biggest problems were identified.

Keywords: Planning on writing, planning operations, writing composition, higher education

Resumen

En este artículo se incluye una investigación cuyo principal objetivo fue conocer qué percepciones poseían estudiantes universitarios de Magisterio acerca de su competencia para planificar la elaboración de un